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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,489	08/31/2000	Youqi Wang	SMX 3083.1	3644

321 7590 09/09/2002

SENNIGER POWERS LEAVITT AND ROEDEL
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS, MO 63102

EXAMINER

QUAN, ELIZABETH S

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 09/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/652,489

Applicant(s)

WANG ET AL.

Examiner

Elizabeth Quan

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-- Th MAILING DATE f this communication app ars on the cover sh et with th corr spond nc addr ss --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18 and 24-49 is/are pending in the application.
- 4a) Of the above claim(s) 18,30,37 and 42-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 12-17,24-29,31-36 and 38-41 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/31/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6,9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION***Election/Restrictions***

1. Applicant's election with traverse of group I, claims 12-17, 24-29, 31-36, and 38-41 in Paper No. 10 is acknowledged. The traversal is on the ground(s) that 1) claims 18, 30, 37, and 42 depend from group I, 2) in order for a reliable search conducted on group I, both apparatus and method will likely have to be searched, and 3) the burden of examining seven additional claims with an overlapping search cannot be "serious." This is not found persuasive because 1) the inventions are distinct and 2) there is a serious burden on the examiner (MPEP 803). The inventions are distinct because they are related as process and apparatus for its practice, where the apparatus as claimed can be used to practice another and materially different process such as cleaning a surface, distributing medication, or providing a sheath fluid for a sample fluid in flow cytometry (MPEP 806.05(e)). There is serious burden on the examiner as each distinct invention has attained recognition in the art as a separate subject for inventive effort and separate field of search. Group I drawn to the apparatus of a sampling probe for delivering a reactant to a substance deposited on a substrate to form a reaction product and transporting the reaction product to a product analyzer for analysis is classified in class 422 subclass 100 for apparatuses involving fluid transfer means. Group II drawn to the method of sampling reaction products is classified in class 436 subclass 180 for methods involving liquid transfer.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: (100) in FIGS. 3 and 4

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and (172) in FIG. 5. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because: The sentence on lines 2-5 is actually a fragment. The phrases “at least the portion” and “Further, and a reactant delivery” are ambiguous. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: On page 4, line 30 “an” should be replaced by “a.” On page 6, line 28 “to” should be omitted. On page 11, line 23 reference character 196 should probably be replaced by reference character 174. On page 13, line 24 either “is” or “may” should be omitted. On page 14, line 18 all three embodiments are referred to. However, on line 20 the third embodiment is neglected. Examiner would like to point out the inconsistency.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 12-17, 24-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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6. Referring to claim 12, it is unclear whether the inner body, tip, or substrate has the “recess.” For examination purposes, the recess has been interpreted as a hollow interior at the tip as defined on page 8, lines 21-23 of the specification.

7. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: location and position of the inner body, tip, outlet, and recess with respect to each other. The structural relationships are significant, as the outlet at the tip appears to be same element as the recess.

8. Referring to claim 16, it is unclear how the vent passage from an inlet is positioned outside the recess of the tip. For examination purposes, “vent passage...from an inlet positioned outside the recess of the tip” has been interpreted as vent passage is not part of the recess of the tip.

9. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: location and position of the vent passage, inlet, recess, and tip with respect to each other. It is unclear exactly where the vent passage is with respect to the recess and tip. It is unclear whether the inlet is part of the vent passage.

10. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural

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cooperative relationships are: location and position of the body, tip, and resiliently compliant element with respect to each other. It is essential to know the relationships as the resiliently compliant element is somehow in “between” these two elements. Furthermore, it is unknown from the claim whether the body and tip are attached or detached. The word “between” is not descriptive to convey an image of exactly where the resiliently compliant element is located.

11. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the element that actually causes the movement between the tip to move relative to the body in light of the resiliently compliant element.

12. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the location and position of the recess, outlet, and opening of the tip with respect to each other. It is essential to clarify the relationship, as it appears the recess, outlet, and opening of the tip are all the same elements.

13. Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the location and position of the outlet, recess, tip, body, reactant delivery passage, sampling passage, and overflow vent passage with respect to each other. It appears that the outlet and the recess are the same. It is unclear where the overflow vent passage is located with respect to the elements.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

15. Claims 12, 13, 15, 16, 24, 26, 28, 31, 32, 34, 35, 38, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,607,094 to Beer.

Referring to claims 12, 13, 15, 16, 24, 26, 28, 31, 32, 34, 35, 38, and 39, Beer discloses a sampling probe capable of delivering a reactant to a substance deposited on a substrate to form a reaction product and for transporting the reaction product to a product analyzer for analysis (see FIGURE; COL. 1, lines 56-63). The probe comprises an inner body and an outer body (11) having an inner cavity sized and shaped for receiving the inner body (see FIGURE). The inner body includes a tip with a recess for engaging the substrate and receiving a portion of the reaction product (see FIGURE; COL. 1, lines 56-63; COL. 2, lines 36-51). The inner body has a resiliently compliant element (24), which

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connects the tip to the inner body for permitting the tip to move relative to the body (see FIGURE; COL. 2, lines 18-22). A reactant delivery passage (26) extends through the probe to an outlet (27) at the tip for delivering reactant to the substance on the substrate to form the reaction product (see FIGURE; COL. 2, lines 66-75). The reactant delivery passage (26) has an annular section defined by an exterior surface of the inner body and an interior surface of the outer body (see FIGURE). A product sampling passage (6) extends from the recess adapted for connection to the product analyzer for transporting at least the portion of the reaction product to the product analyzer (see FIGURE; COL. 2, lines 36-51). A vent passage (18) extends through the outer body (11) from an inlet positioned outside the recess of the tip for removing reactant from an area outside the recess (see FIGURE; COL. 2, lines 8-10). An overflow vent passage (20) is in fluid communication with the recess for removing excess reactant from the recess (see FIGURE; COL. 2, lines 11-16). Therefore, Beer includes all the limitations in claims 12, 13, 15, 16, 24, 26, 28, 31, 32, 34, 35, 38, and 39.

16. Claims 12, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,959,297 to Weinberg et al.

Referring to claims 12, 16, and 17, Weinberg et al. disclose a sampling probe capable of delivering a reactant to a substance deposited on a substrate to form a reaction product and for transporting the reaction product to a product analyzer for analysis (see FIGS. 8-10). The probe comprises an inner body and an outer body having an inner cavity sized and shaped for receiving the inner body (see FIGS. 8-10). The inner body includes a tip with a recess for engaging the substrate and receiving a portion of the

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reaction product (see FIGS. 8-10; COL. 15, lines 30-67). A reactant delivery passage (904) extends through the probe to an outlet at the tip for delivering reactant to the substance on the substrate to form the reaction product (see FIGS. 8-10; COL. 15, lines 30-67). A product sampling passage (906) extends from the recess adapted for connection to the scanning mass spectrometer for transporting at least the portion of the reaction product to the scanning mass spectrometer (see FIGS. 8-10; COL. 15, lines 30-67). A vent passage (806) extends through the outer body from an inlet (908) positioned outside the recess of the tip for removing reactant from an area outside the recess (see FIGS. 8-10; COL. 15, lines 30-67). Therefore, Weinberg et al. includes all the limitations in claims 12, 16, and 17.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

20. Claims 14, 25, 33, and 40 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,607,094 to Beer in view of U.S. Patent No. 4,852,620 to Jakubowicz et al.

Referring to claims 14, 25, 33, and 40, Beer does not disclose a resiliently compliant element that comprises a bellows. However, Jakubowicz et al. disclose the use of a bellows within the inner cavity of the outer body (see FIGS. 2 and 3). The bellows permits the tip to move relative to the body with minimal force and handles high stress without cracking (see COL. 1, lines 38-48; COL. 2, lines 16-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sampling probe of Beer to provide a bellows as in Jakubowicz et al. that withstands high stress without cracking and permits the tip to move relative to the body with minimal force.

21. Claims 17, 27, 29, 36, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,607,094 to Beer in view of U.S. Patent No. 5,959,297 to Weinberg et al.

Referring to claims 17, 29, 36, and 41, Beer does not disclose a product analyzer comprising a spectrometer. However, Weinberg et al. discloses a probe used in

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combination with a scanning mass spectrometer. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the probe of Beer to be used with a scanning mass spectrometer given that Weinberg et al. use a probe in combination with a spectrometer.

Referring to claim 27, Beer does not disclose a vent passage inlet positioned adjacent the tip for removing reactant from an area outside the recess. However, Weinberg et al. disclose a vent passage inlet (1004) positioned adjacent the tip for removing remaining reactant gases through outlet (908) to gas outlet conduit (806) for expulsion after product formation (see COL. 15, lines 64-67). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the probe of Beer to provide the vent passage inlet adjacent the tip as in Weinberg et al. to expel excess reactant gases after product formation.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art includes one or more limitations of the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

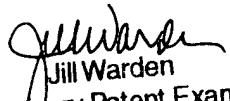
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 879-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Elizabeth Quan
Examiner
Art Unit 1743

eq
August 29, 2002


Jill Warden
Supervisory Patent Examiner
Technology Center 1700